



MVHS CYBER PANTHERS:
SINKING OUR CLAWS INTO CYBER

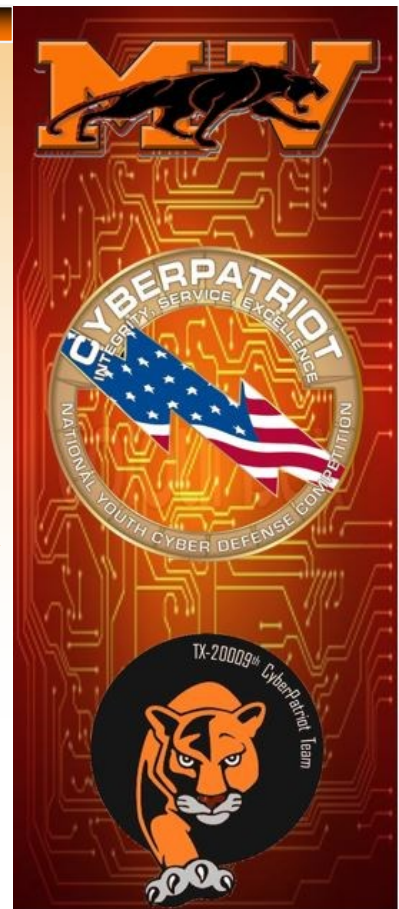
The Medina Valley CyberPatriot team did not allow COVID –19 to slow its momentum throughout the three rounds of the CyberPatriot competition. The AFJROTC and Open Division teams did well after earning their spots in the Platinum and Gold Tiers. The teams that were in the Platinum Tier were AFJROTC Teams 1 and 2. The team that were in the Gold Tier were AFJROTC Team 3, and Open Teams 1, 2, and 3. Congratulations to all of the teams.

The second half of the season is building up to be just as exciting as the first as we transition from cyber from cyber defense to cyber offense as we start the Capture the Flag (CTF) season. In a CTF the player or team must do find the digital flag in order to score points. The two CTF competitions that Medina Valley is participating in is CyberStart America, from the SANS Institute. The second is Pico CTF, from Carnegie Mellon University. These CTF competitions were created to help high school students learn more about cybersecurity by providing a safe hands-on virtual experience. Each competition offers scholarship prizes for the top performers. In the CyberStart America competition Medina Valley has 17 team members qualify for the National Cyber Scholarship Competition. This three day event will take place starting on April 5th and ending on April 7th. The Pico CTF will begin on March 16th and will end on March 30th.

On March 3rd we hosted our first guest speaker Mrs. Neferteri Strickland. Mrs. Strickland joined us virtually from her home office in Philadelphia, Pennsylvania to discuss leadership and her career in cybersecurity. The team members that were in attendance we able to ask her about education pathways and what is like working in the cybersecurity industry.

I want to thank Neferteri Strickland for being our guest speaker last week and delivering her inspirational presentation "A Leader Among Us" to the Medina Valley CyberPatriot team. They enjoyed listening to her presentation and had fun with the question-and-answer session. The answers she provided to questions ranging from education pathways to her experiences working in this career field will help guide them to pursue their goals.

-Head Coach Frank Hall



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"I almost gave up on joining the team the first time I tried to make a practice because I couldn't find the classroom , then I saw a JROTC cadet"



FOUR YEARS **C/LT.COL.HENRY "EL NIÑO" CASIANO NIÑO IV**

For four years my life has revolved around CyberPatriot, cyber-related camps, activities, competitions, and the overall pursuit of knowledge of cyber-security and technology. I can say without a doubt in my mind that through all the ups and downs, the confusion and realizations, the sleepless nights and tired mornings, I have not regretted a single moment.

I almost gave up on joining the team the first time I tried to make a practice because I couldn't find the classroom, then I saw a JROTC cadet. At the time I was not someone who spoke a lot so going up to him was something I was very uncomfortable with but I walked up to him anyway. I asked him if he knew where they were holding the practice for CyberPatriot and funny enough, he told me he was actually the team commander. I followed him to the room and instantly was overwhelmed with how many people were there. Over the course of a couple of practices, I became comfortable with everyone on my team and people who were on my competitor JROTC teams. Eventually, I also became friends with some of the Open team members.

Events were where I really got to solidify how close I was to all my team members. At one event we attended, a member from the Open team got up to get seconds in the food line and came back with some so I went up to get some too and they told me that they weren't serving second meals. I came back to the whole table laughing at me for my failed attempt to get food when the previous member was able to get it so easily. All the camps I went to taught me something I didn't know whether I realized it at the time or not. The biggest example of this was when, In May of 2018, I attended a camp at St. Mary's University which was all paid for by the CyberTexas Foundation. In that camp, I learned about coding in C#. I made things from a Caesar Cipher to a password cracker. In making a password cracker, I realized a year later that in system hardening, just like the code I made, other password crackers use text files to pull the information from. I, unfortunately, realized this too late during my competition season and was something I should have realized sooner.

Stories were important memories that got passed around our CyberPatriot team. There are so many to talk about that really bonded us together as a team. To name a few, There were ones about rubber chickens, herbal tea, exploding rocket sodas; to the entire school network shutting down in the middle of a competition. And those were stories that were before my time. To name a couple more, there have been many times people have pulled Niño-Masons by locking themselves out of their systems, and Garceses by starting way too early, and EMPs by looking at or touching a computer and it literally just stops working for no reason. None top the cake like my last competition.

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FOUR YEARS
C/LT.COL.HENRY "EL NIÑO" CASIANO NIÑO IV

(Cont'd from page 2) Competitions were the best part of being in CyberPatriots, Even with all the stress that came with it. All the flatlines I saw, all the missing forensics questions I didn't understand. Through all of it, one thing never changed, being a team. Although we didn't sing in the beginning it has become a staple that we always sing songs during competitions whether it be Christmas songs before Christmas or sea shanties or even just normal songs. The same goes for the ceremonial opening of a bag of Flaming Hot Munchies and the group huddle that we do.

My last competition was exactly like any other except for a couple of things that happened. Every single competition I have done, my image, the Linux image never had sound. And as it turns out in my very last competition, I heard a victory noise and assumed my Windows people got more points which prompted me excitedly to ask my members which one got points, when neither said they did it confused me. Until I realized that the noise kept popping up when I made points, that's when I realized in a weird way in some biggest kind of coincidence kind of way it was a goodbye. One last farewell from CyberPatriot, for as weird as it sounds that alone is the best moment I have ever had in CyberPatriot. During that time my team reached high enough in ranking to where we thought we were going to nationals. Unfortunately, we did not, but the fact that we went home as real winners was better than anything I could have ever have asked for.

I wouldn't trade any amount of money or any amount of anything for those memories. It has been my absolute pleasure to be a part of these teams because I love them all like they are my family because, in reality, they are my family. I have seen many people in CyberPatriot leave high school and it has made me sad because it really felt like I would be with them forever. And it's a bittersweet feeling that it is now my turn to leave and live my life and leave the family I felt like I would have been with forever. I want to thank my previous team members and friends who brought me into CyberPatriot and made my first years so amazing it kept me coming back for more. I also want to thank everyone who I have taught for making me a better teacher and forcing me to learn more about what I love to do to help in every way I can.

And lastly, I want to thank Mr. Hall for everything he has done for all of us. He has done a lot for me that at times I honestly did not realize, I am so thankful for every opportunity he has given me and for all the time he spent volunteering to help us succeed.

Thank you, Mr. Hall, for everything.

"It has been my absolute pleasure to be a part of these teams because I love them all like they are my family because, in reality, they are my family."



“There have been three substantial cyber-attacks that have affected critical infrastructure and the cybersecurity industry.”



CURRENT EVENTS IN CYBERSECURITY: FLORIDA WATER TREATMENT PLANT ATTACK

Since the beginning of 2021, there have been three substantial cyber-attacks that have affected critical infrastructure and the cybersecurity industry. I will be focusing on the attack that could have caused serious harm or even killed many people in Oldsmar, Florida.

On February 5, 2021, a bad cyber actor was able to successfully infiltrate a supervisory control and data acquisition (SCADA) system at a water treatment facility in Oldsmar, Florida. According to a Cybersecurity & Infrastructure Security Agency (CISA), Alert (AA21-042A), “The unidentified actors used the SCADA system’s software to increase the amount of sodium hydroxide, also known as lye, a caustic chemical, as part of the water treatment process.” Thankfully the water treatment personnel noticed the change in the chemicals in the amount of sodium hydroxide and were able to take corrective measures to stop the contamination.

The CISA alert continues to list many problems with software and hardware problems which allowed the attacker to manipulate the SCADA system. Here are some of the weaknesses that were found according to the CISA alert and report:

- Poor password security
- Outdated operating system
- Desktop sharing software
- Misconfigured and out of date anti-virus, spam filters

These are a few of the problems that are found in our practice and competition images. On our checklists we have items to ensure that there are strong security policies in place, unauthorized software is removed, and all updates are applied.

Since I have started coaching and mentoring in 2016, I have been asked how does cybersecurity affect us here in a farming community? Here is my answer, just like in Florida there are water treatment facilities that service Medina and Bexar counties are controlled by computers and SCADA systems. While the possibility of the same cyber-attack happening here is low, the possibility of someone finding and using an exploit is still a real possibility.

Programs such as CyberPatriot, CyberStart America, and Pico CTF are the start of a team members’ hands-on training in cybersecurity. Using what you have learned on the team can directly transfer to helping to detect and thwart a cyber-attack.

The full CISA Alert (AA21-042A) and report can be found at the following website:
<https://us-cert.cisa.gov/ncas/alerts/aa21-042a>

If anyone has any further questions please e-mail me at mvhsdepteam@gmail.com
-Coach Hall

CAN YOU SOLVE THE PUZZLES?

Here is a new addition to the Bits and Bytes newsletter...puzzles. In each edition I will publish one or two puzzles from various sources. These puzzles will help each team member build skills that are necessary for answering forensic questions that are found in competition.

The puzzles that are displayed below are from the Central Intelligence Agency. The first person to post the correct answer on the teams Facebook page, on the team Discord server, or to send an e-mail to mvhscpteam@gmail.com will get a coin.

To determine the winner I will use the time stamp from the post or e-mail.

Coach Hall

Puzzle 1

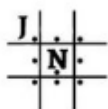
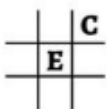
UNSCRAMBLE

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AKREB TNIO LYDOHLWOO, TUB RHE
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FOTFER GENADI EHR THE
EDNITLPEARIS ALMDE FO DEFEMRO.

Puzzle 2



HERE ARE A FEW HINTS:



“Since I have started coaching and mentoring in 2016, I have been asked how does cyberse-
curity af-
fect us
here in a
farming
commu-
nity? ”



Medina Valley High School

CyberPatriot Team

We are the Medina Valley CyberPatriots!! We are the cyber warriors that relentlessly defend networks from attack. Our cyber hunting skills cannot be matched. We find threats, eliminate them, and strategically launch counter attacks against our cyber enemies. We are CyberPatriots!!

Medina Valley High School

CyberPatriot Team

Facebook Page Address:

[https://
www.facebook.com/
tx20009MVCPTeam/](https://www.facebook.com/tx20009MVCPTeam/)

High School Website Link:

[https://
www.mvisd.com/
Domain/1421](https://www.mvisd.com/Domain/1421)

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Head Coach

Fredrick F. Hall

Chief Editor

Angela M. Hall

ABOUT THE MVHS CYBERPATRIOT TEAM

The Vision

The vision of the Medina Valley CyberPatriots program is to promote cyber awareness, computer security practices, and cyber ethics. All of these are essential attributes for creating a secure network infrastructure, teaching the students how to detect threats, and how to defend against cyber-attacks in a safe virtual environment.

The skills and knowledge the students will gain from participating in this program will give them an advantage to obtain information technology certifications, scholarships in computer related fields of study, and ultimately provide an opportunity to start a great career in information technology and cyber security.

The Mission

The mission of the Medina Valley CyberPatriot program is the proper instruction and implementation of information technology principals and cyber security practices. All students will be taught how to use various operating systems, interconnecting network devices, and how to secure the entire infrastructure. The students will also be taught how to properly use tools and methodologies to assess and troubleshoot problems that range from inoperable workstations to misconfigured networking equipment. These are the skills that will be necessary to compete in the CyberPatriot competitions and will enable us to advance to each round and ultimately to the national finals.